

scopic areas, multitudes of the *secreting cell-particles* are attached to the *containing texture of the blood*; and in the liver the same continuous relations are thought by the best anatomists to prevail between the *secreting elements* and the *venous blood*, as appear to exist in the brain between *sentient elements* and *arterial blood*. It is these synthetical relations which prove to us how dependent every part of the body is upon the circulation of blood, and deprive analytical investigations of the extensive influence which otherwise they must have had upon the art of therapeutics. In the embryo, *germ-masses* or groups of *sentient, motor, and secreting elements* are founded prior to the flowing of the blood-current, but the growth of blood-vessels, of fibrous textures and bones, upon which the relations of forms and functions depend, is posterior to the circulation; and the healthy constitution of these textures hinges upon a normal metamorphosis of the elements of blood. Such being the facts, what, then, replenishes and maintains the circulating fluid?

"In answering this question, we enter upon another and a widely different sphere.

"Food, drink, and air, incorporate with blood. Here we pass from the department of the living body to the world of external nature: and it is to be observed that the elements of the one cannot be said to be *more necessary to the phenomena of life and health than are those of the other*; for the body dies as soon deprived of air as it does deprived of blood."—*Lond. Med. Gaz.*, Sept. 20th, 1850.

ORGANIC CHEMISTRY.

5. *On the Salts contained in Cholera Evacuations.* By Dr. GUTTERBOCK.—The following are the author's conclusions, drawn from the chemical examination of the stools in cholera:—

1. A most remarkable circumstance is the large proportion of water, amounting, on an average, to 98.119; while, according to Berzelius, normal stools contain 75.3. The specific gravity, too, is remarkably low, varying from 1.006 to 1.008; the urine itself, in but few diseases, manifesting so low a one. 2. The solid constituents amount on an average to but 1.81. 3. Among these, the inorganic salts constitute by far the largest portion—upon an average 4-5ths, the organic matter being only 1-5th—a proportion that is the reverse of the normal, in which the organic parts form 19-20ths according to Berzelius, and 9-10ths according to Rose. 4. Among these salts the most remarkable is the *chloride of sodium*, constituting, upon an average, nearly $\frac{1}{4}$, and, in some cases, 2-3ds, of the whole. The cholera stools contain nearly $\frac{1}{2}$ per cent. on an average, while, according to Berzelius, the normal proportion is but 0.28; and according to the latest analysis of solid excrement, by Rose and Fleitmann, this proportion is even unusually large, as in 100 parts of the entire salts, only 1-58th were chloride of sodium. Thus the cholera stools contain a hundred times as much salt as the normal; and, indeed, so considerable is the quantity that, after the evaporation of the fluid, the unassisted eye recognizes the characteristic crystals. 5. Next to this the *carbonate soda* is most abundant, and besides these are some phosphate of magnesia and lime, and a trace of the sulphate. The absence of *potass* in the stools is remarkable, forming, as it does, a chief saline constituent in the normal solid stools. According to Rose and Fleitmann, these contain 22.49 per cent., while in the cholera stool only a trace is detectible. 6. The organic matters of cholera stools consist in great part of mucus and the remains of epithelium, and it has generally been believed that they are rich in albumen. The experiments of the author and of Corenwinder contradict this, for they either found it entirely absent, or mere traces present. Massicot (*Gaz. Med.*, No. 14, 1849) states that he found a considerable quantity; but as the stools were compared to soup in colour they probably contained blood—an important point to be borne in mind during investigations for albumen. In almost all cases a small quantity of casein is present, especially in stools removed after death. 7. The abdominal discharges were always alkaline, but the vomits

neutral, or slightly acid. These latter, too, contained a still larger proportion of water, *viz.*, 99 per cent., and were little above the specific gravity of water. Upon an average, the salts constituted about a half of the solid matter, but the proportion between these and the organic constituents was not so constant as in the alvine evacuations. So also the proportion of chloride of sodium varied, but it never exceeded that of the other salts. No albumen was present. 8. The contents of the bowel thus appear to become changed in their passage, not only by the presence of broken epithelial scales, but also in chemical composition, being richer in organic constituents than when they have passed the anus. 9. It is to be expected that the increase of chloride of sodium in the stools is contemporary with the diminution of the substance in the blood noticed by O'Shaughnessy, Kayer, and Mulder; but the cessation of the epidemic prevented Dr. Güterbock examining this point for himself. Supposing future researches to affirm it, it is only one step towards explaining an increase, which, compared with Rosa's analysis of normal excrement, is a hundredfold. According to this chemist, a large portion of the chloride of sodium is excreted in the urine, almost 600 times as much as in the stools; and the arrest of the secretion of urine during cholera may explain the enormous increase in the stools.—*Brit. and For. Med.-Chir. Rev.*, Oct. 1850, from *Poggendorf's Annalen*, Bd. lxxix.

6. *Influence of Salt Diet on the Composition of the Blood.*—POCCIALE has examined the blood of man, both at the time that the usual diet was taken, and whilst 154 grs. of salt were consumed daily. The following are the results:—

	During usual diet.	During salt diet.
Water	779.9	767.6
Blood-corpuses	130.1	143.0
Albumen	77.4	74.0
Fibrin	2.1	2.3
Fatty matters	1.1	1.3
Extractive and salts	9.3	11.8

From which it is evident that the proportion of solid constituents are increased; this occurs chiefly in the blood-corpuses and extractive, the amount of albumen being slightly diminished.—*Compt. Rendus*, xxv.

BOUSSINGAULT has also extended his observations concerning the influence of salt on the fattening of cattle. His earlier experiments had shown that salt does not exert that beneficial influence on the growth of cattle, and the production of flesh, which is usually ascribed to it. His present experiments have been extended over a period of thirteen months, and have been made on a number of steers, some of which had their rations salted, while the other had not; in other respects they were treated in a precisely similar manner. The results have shown that the increase in the proportion of flesh does not pay for the salt employed. Boussingault, however, remarks that a saline diet exerts a beneficial effect on the appearance and condition of the animals; for the steers which were deprived of salt for eleven months appeared sluggish, and of a languid temperament; their coats were rough, devoid of gloss, and partially bare; while those which had been fed with salt were lively, had a fine glossy coat, and were sure to obtain a considerable higher price at market.—*Brit. and For. Med.-Chirurg. Rev.*, from *Liebig's Report*, vol. ii.

MATERIA MEDICA AND PHARMACY.

7. *On the Action of Bromide of Potassium.*—M. HUETTE has been induced, by reason of the analogy in composition which this substance offers to iodide of potassium, and by the recommendation by a few practitioners of its therapeutic employment, to try a series of experiments with it. These have resulted in complete disappointment; but during his investigation he discovered two effects producible by the bromide, which, if confirmed on further trials, may